

CHANGES TO THE SPECIFICATION

Please insert the following paragraph on page 7, line 6, between the Brief Descriptions of FIGURES 2 and 3:

FIGURE 2A shows an alternative embodiment π network PIN diode attenuator circuit of the present invention;

Please amend the paragraph beginning at page 8, line 10, as follows:

The common cathode nodes of attenuator 100 are coupled to a DC ground (whether zero potential ground or some potential with respect thereto) through resistors (R₃₁ for the common cathode node of D₁₁ and D₂₁ and R₄₁ for the common cathode node of D₃₁ and D₄₁). ~~Resistors~~ Resistors R₃₁ and R₄₁ are used to adjust the voltage present at that common cathode point as a function of the control voltage (V_{control}). The control voltage in attenuator 100 is provided to the pairs of diodes at the common anode node of D₂₁ and D₃₁. As the control voltage is applied across one diode at the anode node, the corresponding cathode voltage will have a tendency to rise or fall, therefore adjusting the bias in the corresponding diode of the pair. As the current through a shunt diode (diode D₁₁ or D₄₁) is increased, the current through the corresponding series diode (diode D₂₁ or D₃₁, respectively) will decrease, and vice versa. With the control voltage V_{control} low, D₂₁ and D₃₁ are biased off and D₁₁ and D₄₁ receive DC bias from the reference voltage V_{reference} resulting in a high attenuation. As the control voltage V_{control} is increased, D₂₁ and D₃₁ start receiving current from V_{control} and stealing current from D₁₁ and D₄₁ resulting in a lower attenuation.

Please amend the paragraph beginning at page 10, line 9, as follows:

Capacitors C₃₂-C₅₂, such as may be approximately 10,000 pF in a preferred embodiment, preferably provide RF shorts to ground. Inductors L₁₂ and L₂₂, such as may be approximately 820 nH in a preferred embodiment, and inductor L₃₂, such as may be approximately 1,500 nH in a preferred embodiment, pass DC bias currents but present high impedance at RF frequencies. ~~Resistors~~ Resistors R₁₂ and R₂₂, such as may be approximately 470 ohms in a preferred embodiment, preferably decouple the anodes of D₁₂ and D₄₂ to thereby block a possible RF leakage path.

Please amend the paragraph beginning at page 10, line 16, as follows:

In the π network configuration of FIGURE 2, PIN diodes D_{12} and D_{22} are coupled in a common cathode configuration with PIN diodes D_{42} and D_{32} mirrored with respect thereto. Specifically, the two series diodes, D_{22} and D_{32} , are disposed in anti-phase or a common anode configuration. This configuration improves the dynamic range over the linearity of the structure by having the second order products of one diode canceled out by the opposite, non-linear portion generated in the series diode pair. The two shunt diodes, D_{12} and D_{42} , are ~~connect~~ connected to the two series diodes in a common cathode configuration

Please amend paragraph beginning at page 11, line 24, as follows:

According to an alternative embodiment 200a of the present invention depicted in FIGURE 2A, steering resistors R_{12} and R_{22} are omitted and the two shunt diodes, D_{12} and D_{42} , are provided independent attenuator control currents I_2 and I_3 . This embodiment of the present invention provides additional flexibility with respect to optimizing the match on either end of the attenuator to the characteristic impedance of the circuit into which it is inserted. For example, this alternative embodiment allows matching from a 50 ohm system to a 75 ohm system, if desired.

Please amend paragraph beginning at page 13, line 16, as follows:

In the T network configuration of FIGURE 4, PIN diodes D_{14} - D_{34} are coupled in a common cathode configuration. The two series diodes, D_{14} and D_{24} , are also disposed in a common cathode configuration. This the common collector configuration improves the dynamic range over the linearity of the structure by having the second order products of one diode canceled out by the opposite, non-linear portion generated in the series diode pair.